REMARKS

The Official Action mailed April 8, 2002 has been received and its contents carefully noted. Filed concurrently herewith is a *Request for One Month Extension of Time* which extends the shortened statutory period for response to August 8, 2002. Accordingly, Applicant respectfully submits that this response is being timely filed.

Applicant notes with appreciation the consideration of the Information Disclosure Statements filed on December 3, 1999, February 29, 2000, October 25, 2000, October 31, 2000, September 7, 2001 and November 30, 2001. Applicants, however, have not received acknowledgment of the Information Disclosure Statement filed on March 7, 2002. Applicant respectfully requests the Examiner to provide an initialed copy of the Form PTO-1449 evidencing consideration.

Claims 1-68 are now pending in the present application, of which claims 1-48 are independent. Claims 2, 8, 52 and 55-66 have been amended herewith. Claims 2 and 8 are amended to correct an obvious typographical matter in that the word "to" was repeated and claims 52 and 55-66 are amended to correct the formal matters noted in paragraph 1 of the Official Action. For the reasons set forth in detail below, these claims are believed to be in condition for allowance.

Paragraph 4 of the Official Action rejects claims 1-68 under the doctrine of obviousness-type double patenting over claims 1-25 of U.S. Patent 6,023,308 and U.S. Patent 5,194,974 to Hamada et al.

Initially, it is noted that page 3 of the Official Action, in comparing the claims of the present application to those of the '308 patent, asserts that the claims of the subject application are directed to an LCD (liquid crystal display) semiconductor device. It is respectfully submitted that the claims are not limited to an LCD device and the Examiner is respectfully requested to interpret the claims, consistent with the broadest reasonable interpretation of the claims, to include all semiconductor devices having the claimed features.

With respect to the double patenting rejection, it is noted that while the claims of U.S. Patent 6,023,308 are directed to an active matrix device, the rejected claims are directed to a method of operation of a semiconductor device. The Official Action

appears to be contending that the claimed device structure is basically the same as the structure recited in the claims of the '308 patent and the claimed step of applying a voltage is disclosed by Hamada such that the rejected claims are not patentably distinguished from claims 1-25 of the '308 patent in combination with Hamada.

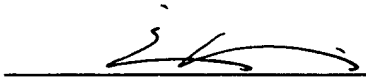
It is respectfully submitted that the combination of Hamada and the claimed subject matter of the '308 patent fail to disclose or suggest all of the claimed limitations. Rejected claim 1 recites a step of applying a voltage from a voltage supply line to the pixel electrode for a period during one frame, wherein the period is determined in accordance with a desired tone of display. Although Hamada teaches to apply a voltage to a pixel electrode for a certain period, it is respectfully submitted that Hamada fails to disclose that the period of applying the voltage is determined in accordance with a desired tone.

As stated in MPEP § 2143-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. It is respectfully submitted that Hamada, taken alone or in combination with the claimed subject matter of the '308 patent, fails to disclose or suggest that the period of applying the voltage is determined in accordance with a desired tone and therefore that the claims of the subject application are not obvious in view thereof. Reconsideration is respectfully requested in view of the above remarks.

It is respectfully submitted that the remaining independent claims include similar limitations to that of claim 1 and are allowable for the same reasons as discussed above. Claim 25, for example, recites a step of applying one or more pulses from the voltage supply line to the pixel electrode during one frame wherein a number of pulses applied to the pixel electrode during one frame is determined in accordance with a desired tone of a display.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



Eric J. Robinson
Reg. No. 38,285

Robinson Intellectual Property Law Office, P.C.
PMB 955
21010 Southbank Street
Potomac Falls, Virginia 20165
(571) 434-6789

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 2, 8, 52 and 55-66 as follows:

2. (Twice Amended) An operation method of a semiconductor device comprising:

a substrate having an insulating surface;

a first signal line extending over said substrate;

a first bottom gate type thin film transistor having a channel region comprising crystalline silicon formed over said substrate wherein a gate of said first thin film transistor is connected to said first signal line;

a second signal line extending across said first signal line;

a second bottom gate type thin film transistor having a channel region comprising crystalline silicon formed over said substrate wherein a gate of said second thin film transistor is electrically connected to said second signal line through at least said first thin film transistor;

a voltage supply line formed over said substrate;

a pixel electrode formed over said substrate wherein said pixel electrode is connected to [to] said voltage supply line through at least said second thin film transistor; and

a driving circuit formed over said substrate for driving at least one of said first and second thin film transistors, said driving circuit comprising a third thin film transistor wherein a channel forming region of said third thin film transistor comprises crystalline silicon,

said method comprising a step of applying a voltage from said voltage supply line to said pixel electrode for a period during one frame, wherein said period is determined in accordance with a desired tone of a display.

8. (Twice Amended) An operation method of a semiconductor device comprising:

a substrate having an insulating surface;

a first signal line extending over said substrate;

a first bottom gate type thin film transistor having a channel region comprising crystalline silicon formed over said substrate wherein a gate of said first thin film transistor is connected to said first signal line;

a second signal line extending across said first signal line;

a second bottom gate type thin film transistor having a channel region comprising crystalline silicon formed over said substrate wherein a gate of said second thin film transistor is electrically connected to said second signal line through at least said first thin film transistor;

a voltage supply line formed over said substrate;

a pixel electrode formed over said substrate wherein said pixel electrode is connected to [to] said voltage supply line through at least said second thin film transistor; and

a driving circuit formed over said substrate for driving at least one of said first and second thin film transistors, said driving circuit comprising a third thin film transistor wherein a channel forming region of said third thin film transistor comprises crystalline silicon,

wherein a channel width of said second thin film transistor is larger than a channel width of said first thin film transistor,

said method comprising a step of applying a voltage from said voltage supply line to said pixel electrode for a period during one frame, wherein said period is determined in accordance with a desired tone of a display.

52. (Amended) The method according to claim 36 wherein said [active matrix] <u>semiconductor</u> device is a liquid crystal device.

55. (Amended) The method according to claim 3 wherein said [active matrix] semiconductor device is a liquid crystal device.

56. (Amended) The method according to claim 6 wherein said [active matrix] semiconductor device is a liquid crystal device.

57. (Amended) The method according to claim 9 wherein said [active matrix] semiconductor device is a liquid crystal device.

58. (Amended) The method according to claim 15 wherein said [active matrix] semiconductor device is a liquid crystal device.

59. (Amended) The method according to claim 18 wherein said [active matrix] semiconductor device is a liquid crystal device.

60. (Amended) The method according to claim 27 wherein said [active matrix] semiconductor device is a liquid crystal device.

61. (Amended) The method according to claim 30 wherein said [active matrix] semiconductor device is a liquid crystal device.

62. (Amended) The method according to claim 33 wherein said [active matrix] semiconductor device is a liquid crystal device.

63. (Amended) The method according to claim 36 wherein said [active matrix] semiconductor device is a liquid crystal device.

64. (Amended) The method according to claim 39 wherein said [active matrix] semiconductor device is a liquid crystal device.

65. (Amended) The method according to claim 42 wherein said [active matrix] semiconductor device is a liquid crystal device.

66. (Amended) The method according to claim 45 wherein said [active matrix] semiconductor device is a liquid crystal device.